CLAIMS

What is claimed is:

1. A vector capable of replication in the cytoplasm of a plant cell, the vector comprising a first subgenomic promoter operably linked to a first polynucleotide encoding a target gene inhibitory RNA, and a second subgenomic promoter operably linked to a second polynucleotide encoding a viral coat protein derived from a tomato mosaic virus, wherein said vector is derived from a tobacco masaic virus and is capable of systemically infecting a host plant and producing the inhibitory RNA.

2. The vector according to Claim 1, wherein said first polynucleotide is upstream to said second polynucleotide.

3. The vector according to Claim 1, wherein said host plant is a *Nicotiana*.

4. The vector according to Claim 1, wherein said target gene inhibitory RNA is an endogenous plant gene inhibitory RNA.

5. The vector according to Claim 1, wherein said target gene inhibitory RNA is an anti-sense RNA.

6. The vector according to Claim 1, wherein said target gene inhibitory RNA is a co-suppressor RNA.

7. The vector according to Claim 1, wherein the first polynucleotide encodes a phytoene desaturase RNA in an antisense direction in relation to the first subgenomic promoter.

8. The vector according to Claim 1, wherein the first polynucleotide encodes a phytoene synthase RNA in a antisense direction in relation to the first subgenomic promoter.

9. A method of producing a plant cell having reduced expression of a gene of interest, the method comprising the steps of transfecting a plant cell with the vector according to Claim 1, wherein the target gene inhibitory RNA is specific for the gene of interest.

10. A method of producing a plant cell having reduced expression of a gene of interest, the method comprising the steps of transfecting a cell with the vector according to Claim 7, and then growing the transfected cell under conditions suitable for growth of the vector.

11. A method of producing a plant cell having reduced expression of a gene of interest, the method comprising the steps of transfecting a cell with the genetic vector according to Claim 8, and then growing the transfected cell under conditions suitable for growth of the vector.

12. A plant cell produced by the method of Claim 9.

13. A plant cell comprising the vector according to Claim 1.

14. A plant cell comprising the vector according to Claim 7.